



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D119-646-041
Job Sheet 165666



Part No: D119-646-041

Job Qty: 1 ea

Part Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 9/30/17

Job Tracking No:

Due Date: 10/31/17

Created By: Mario Poulin

Type: Stock

Description:

Note: DWG IIN-D119-646 REV D, D3887-041 REV E SHEETS 1,2,5,7,8,10,11 IPP RevA: New issue DD verified by:EC IPP rev B 10.02.22 per PAR 09-043 EC verified by:DD IPP REVC 12.11.05 (DEOD3887-B-1)(ecn 12-675) DD verf:JLM IPP REV:D 13.03.20 per chg003 ECN13-534 DD verf:JLM IPP REV:E 17.05.19 as per dwg D3887 rev.e DD verf:JFS

Ship Via:

Bill of Materials

Part/Part Name	Part Note	Serial No	Quantity	Location
D119-646-041 AW119 Replacement Skidtube with Wearpads - Fits LH or RH	DWG IIN-D119-646 REV D, D3887-041 REV E SHEETS 1,2,5,7,8,10,11 IPP RevA: New issue DD verified by:EC IPP rev B 10.02.22 per PAR 09-043 EC verified by:DD IPP REVC 12.11.05 (DEOD3887-B-1)(ecn 12-675) DD verf:JLM IPP REV:D 13.03.20 per chg003 ECN13-534 DD verf:JLM IPP REV:E 17.05.19 as per dwg D3887 rev.e DD verf:JFS		0.000	
ALS4-1032-130 Rivnut			0.000	
ALS4-1032-225 Rivnut	DWG-REV B		0.000	
AN3C4A Bolt			0.000	
AN3C5A Bolt			0.000	
D2500-1-190 Ext'n - 'I' Beam Tube 4"	DWG REV H		0.000	
D2579 Crossbolt Spacer	DWG REV E IPP E 02.06.17 Now turned on Cobra NG IPP F 07.07.06 rev E dwg EC		0.000	
D2855-3 Cap	DWG REV C IPP RevA: New issue DD verified by:EC		0.000	
D2855-5 Cap	DWG REV C IPP REV:A 17.05.10 NEW ISSUE DD VERF:JFS		0.000	
D3492-5 Plug	DWG REV E IPP Rev:A 11.04.19 per dwg revC DD verf:EC		0.000	
D3672-1 Washer, Phenolic	DWG REV D IPP Rev:A New Issue 07-09-09 JLM Verified By:EC IPP Rev:B ECN 1056 07-11-13 DD		0.000	
D3681-1 Spacer	DWG REV A IPP Rev A new issue 07-10-30 DD verified by:EC IPP Rev:B Ecn 1056 Rev A dwg DD IPP Rev:C add seq 125 DD 10.05.03 verified by:EC		0.000	
D3847-1 Wearpad	DWG REV D SHEETS 1,7 IPP RevA: New issue DD verified by:EC IPP REV:B 14.11.25 AS PER DWG REV.C DD VERF:JLM IPP REV:C 16.03.31 AS PER DWG REV.D DD VERF:JLM		0.000	
D3847-11 Wearpad	DWG REV D SHEETS 2,7 IPP RevA: New issue DD verified by:EC IPP REV:B 16.03.31 AS PER DWG REV.D DD VERF:JLM		0.000	
D3885-1 Standard Web	DWG REV C IPP RevA: New issue DD verified by:EC		0.000	
D3903-1 Spacer	DWG REV B IPP RevA: New issue DD verified by:EC		0.000	
MS24694-C52 Screw			0.000	
NAS1149C0332R Washer			0.000	

DART
AEROSPACE

S009974



AW119 Replacement Skidtube with Wearpads — Fits LH or
RH

PART NO:

D119-646-041

Revision:

Operation:

Change No:

Start up Operation

Mfg Date: 11/14/17

Job No: 165666

Dart Aerospace Ltd.

1270 Aberdeen Street
Hawkesbury, ON K64 1K7

CANADA

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Email: sales@dartaero.com

www.dartaerospace.com

O-Ring

Job Routing

Op No	Operation	Qty	Due Date	Standard		Workcenter/Supplier	
				Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time
90	Start up Operation	1 Ea	10/31/17	0.00	0.00	Start up container	
100	DC	1 pcs	10/31/17	0.00	0.00	DC	
110	Skidtubes	1 pcs	10/31/17	0.00	0.00	Skidtubes <i>MG</i>	
120	HandFinish	1 pcs	10/31/17	0.00	0.00	HandFinish1	
121	QC	1 pcs	10/31/17	0.00	0.00	QC7 <i>BE</i>	
122	QC	1 pcs	10/31/17	0.00	0.00	QC5 <i>BE</i>	
130	Skidtubes	1 pcs	10/31/17	0.00	0.00	Skidtubes <i>MG</i>	
135	QC	1 pcs	10/31/17	0.00	0.00	QC5 <i>BE</i>	
140	Skidtubes	1 pcs	10/31/17	0.00	0.00	Skidtubes <i>MG</i>	
150	QC	1 pcs	10/31/17	0.00	0.00	QC5 <i>BE</i>	
160	Skidtubes	1 pcs	10/31/17	0.00	0.00	Skidtubes <i>BE</i>	
170	QC	1 pcs	10/31/17	0.00	0.00	QC5 <i>38</i>	<i>DAS</i>
180	QC	1 pcs	10/31/17	0.00	0.00	QC10 <i>38</i>	
190	HandFinish	1 pcs	10/31/17	0.00	0.00	HandFinish2 <i>2017-12-19 22</i>	
200	Powdercoat	1 pcs	10/31/17	0.00	0.00	Powdercoat1 <i>BE 17-12-19</i>	
210	QC	1 pcs	10/31/17	0.00	0.00	QC3 <i>17/12/20</i>	
220	HandFinish	1 pcs	10/31/17	0.00	0.00	HandFinish4 <i>17/12/20</i>	
230	QC	1 pcs	10/31/17	0.00	0.00	QC5 <i>BE 17-12-20</i>	
240	HandFinish	1 pcs	10/31/17	0.00	0.00	HandFinish4 <i>17/12/20</i>	
245	QC	1 pcs	10/31/17	0.00	0.00	QC5 <i>17-12-20</i>	
250	HandFinish	1 pcs	10/31/17	0.00	0.00	HandFinish3 <i>17/12/20</i>	
251	QC	1 pcs	10/31/17	0.00	0.00	QC5 <i>17-12-21</i>	
260	Packaging	1 pcs	10/31/17	0.00	0.00	Packaging3 <i>BE</i>	
270	QC21-FG	1 Ea	10/31/17	0.00	0.00	QC21	<i>DEC 22 2017</i>

Part Op 100 - Photocopy bluefile & type labels per PPP D119-646-041 CHG004

Descriptions: 110 - 1- inspect Mat'L D2500-1-190 for damage 2-Cut tube to length as per dwg D3887 (154.8") 3- Ensure squareness of ends and scribe batch#

130 - 1- Install drill Jig DT9477 drill X-bolt spacer pilot holes using 3/16" drill first side only. 2- 2nd side, locating from first saddle holes use DT9861 A/B to drill 2nd side fwd saddle holes. 3- 2nd side locating from fwd saddle drill remaining crossbolt spacer holes using DT9477 4- Open crossbolt spacer holes to finished size as per dwg D3887 (section D-D and E-E) ***DO NOT OPEN FWD Saddles Holes*** 5- Deburr, blow out chips from inside of tube. 6- Bond web in place as per Dwg D3887 & QSI 015. A/R *M 138535 8/18-04-21 Done Date 17-10-31*

140 - 1- Bend FWD end of tube using bender 1 and FOLIO 31 bend prog. D3887.***Must use bending aid DT9544, ensure proper positioning*** 2- Cut FWD end of tube as per dwg D3887.***Verify measurement*** 3- Buff out marks left from bending 4- Drill FWD cap holes using DT8215. Open FWD & AFT cap holes to 0.208" 5- Open FWD saddle holes to finished size as per dwg D3887 6- Drill FWD x-bolt spacer holes using DT9816 and open to finished size.(verify measurement) 7- Drill Tow ring hole, using DT10047 locate from FWD saddle hole. (verify measurement). Open to finished size. 8- Drill 1.87" and 3.74 holes using DT10045 A&B locate from FWD saddle hole. (verify measurement) as per dwg. 9- C'sink FWD cap hole as per detail "C" 10- Drill holes for wearpads using DT8931, open to 0.297". 11- Countersink crossbolt spacer holes, and prepare tube for welding, deburr. 12- Deburr and blow out chips from inside of tube.

160 - NOTE:TACK IN 2 MOST FWD X-BOLT SPACERS AND TEST FIT FWD GROUND HANDLING FIXTURE,IF FIXTURE FITS WELL THEN PROCEED. FIXTURE DT10091. 1-Insert crossbolt spacers. Weld as per QSI 004 and Dwg D3887. Remember to back drill each hole before welding the other side. Use aluminum rod A/R 2-Grind cross bolt welds flush as per Dwg D3887. Ensure no pin hole. 3-Counterbore 5/16" x 0.750" deep as per Dwg D3887. 4- Deburr & Scribe batch # on Aft end of tube.

170 - TEST FIT USING FIXTURE DT10091.

190 - Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch

200 - START TIME: *5:00* FINISH TIME: *5:30. 00:11:30 M 138467*

220 - 1-Install inserts as per Dwg D3887.

240 - 1-Install wearpads, gaskets as per Dwg D3887. Put sikaflex in insert before installing bol and washers

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D2500-1-190 <i>59717</i>	1	0	0	0
	D2579 <i>5000719</i>	2	0	0	0
140-Skidtubes	D3885-1 <i>162925</i>	1	0	0	0
160-Skidtubes	D2855-5 <i>166541</i>	1	0	0	0

230-QC 240-HandFinish	F1135998-2	D3681-1	F165379	12	0	0	0
		D3903-1	B165654	12	0	0	0
		ALS4-1032-130	500724	33	0	0	0
		ALS4-1032-225		1	0	0	0
		AN3C4A	5000533	6	0	0	0
		AN3C5A	F1137710-1	26	0	0	0
		D2855-3	F153291	1	0	0	0
		D3492-5	F165338 (x13)	24	0	0	0
		D3672-1	F150074	2	0	0	0
		D3847-1	N1161945-124	5	0	0	0
		D3847-11	5010683	1	0	0	0
		MS24694-C52	F1137951	2	0	0	0
		NAS1149C0332R		32	0	0	0
		NAS1611-005	5007808	24	0	0	0
Part Specifications							
Specifications could not be found.							

Work Order ID 165666

Monday, August 28, 2017 12:42:35 PM

165666

Page 1

Item ID: D119-646-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 10/18/2017 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan:

DAS
21
9-30

Date: AUG 30 2017

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D3887-041

E

IIN-D119-646

D

100

0.00

100

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile & type labels per PPP D119-646-041 : CHG005

110

0.00

110

Skidtubes

Memo

0.00

Skidtubes

1-Inspect Mat'L D2500-1-190 for damage

2-Cut tube to length as per dwg D3887 (154.8")

3-Ensure squareness of ends and scribe batch#

QA Closed: _____		Date: _____		Work Order update only ☐													
Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION				AGAINST DEPARTMENT/PROCESS									
				Rework ☐				Skid-tube ☐		Cross tube ☐		Water Jet ☐		Engineering ☐			
				Scrap ☐				Machining ☐		Small Fab ☐		Prod. Eng. Coord. ☐		Quality ☐			
				Use-as-is ☐				Thermoforming ☐		Finishing ☐		Rec/Store/Packaging ☐		Other ☐			
				Suspected Unapproved ☐				Large Fab ☐		Composite ☐		Supplier ☐					
Date :			Step #:			QTY Effective :						MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval					
Description Work Order Deviation						Disposition											
Root Cause				FAULT CATEGORY													
Environment ☐	☐	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong						
Design ☐	☐	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions						
Doc/Data ☐	☐	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance						
Equip/Tooling ☐	☐	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect						
Handling/Pre ☐	☐	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing						
Material ☐	☐	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved						
Internal Transport ☐	☐	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing						
Tribal Knowledge ☐	☐	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish						
LOA ☐	☐	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread						
Substation ☐	☐	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence						
Past Expiry Date ☐	☐	☐	Manufacturing Process	OTHER : _____													
Misidentified ☐	☐	☐	Past Due														

Work Order ID 165666

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165666

Page 2

Item ID: D119-646-041

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 10/18/2017 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120

Chemical Conversion Coat per QSI005 4.1

0.00

120

HandFinish

Memo

0.72

Hand Finishing

121

QC7-Inspect Chemical Conversion Coat

0.00

121

QC

Memo

0.00

Quality Control

122

QC5- Inspect part completeness to step on W/O

0.00

122

QC

Memo

0.00

Quality Control

QA Closed:		Date:		Work Order update only													
Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION				AGAINST DEPARTMENT/PROCESS									
				Rework ☐				Skid-tube ☐		Cross tube ☐		Water Jet ☐		Engineering ☐			
				Scrap ☐				Machining ☐		Small Fab ☐		Prod. Eng. Coord. ☐		Quality ☐			
				Use-as-is ☐				Thermoforming ☐		Finishing ☐		Rec/Store/Packaging ☐		Other ☐			
				Suspected Unapproved ☐				Large Fab ☐		Composite ☐		Supplier ☐					
Date :		Step #:				QTY Effective :				MRB (QSI042) Approval							
Description Work Order Deviation						Disposition											
												Completed By					
												Lead hand / Supervisor Approval Verification					
												QC / QA Coordinator Approval					
Root Cause						FAULT CATEGORY											
Environment ☐	☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐											
Design ☐	☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐											
Doc/Data ☐	☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐											
Equip/Tooling ☐	☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐											
Handling/Pre ☐	☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐											
Material ☐	☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐											
Internal Transport ☐	☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐											
Tribal Knowledge ☐	☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐											
LOA ☐	☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐											
Substation ☐	☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐											
Past Expiry Date ☐	☐	Manufacturing Process ☐															
Misidentified ☐	☐	Past Due ☐	OTHER :														

Work Order ID 165666

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165666

Page 3

Item ID: D119-646-041

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 10/18/2017 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

0.00

130

Skidtubes

Skidtubes

Memo

0.00

1- Install drill Jig DT9477 drill X-bolt spacer pilot holes using 3/16" drill first side only.

2- 2nd side, locating from first saddle holes use DT9861 A/B to drill 2nd side fwd saddle holes.

3- 2nd side locating from fwd saddle drill remaining crossbolt spacer holes using DT9477

4- Open crossbolt spacer holes to finished size as per dwg D3887 (Detail R and T) and .313 holes (section J-J). ***DO NOT OPEN FWD Saddles Holes***

5- Deburr, blow out chips from inside of tube.

6- Bond web in place as per Dwg D3887 & QSI 015.

A/RSikaflex-291 _____

Sikaflex expire date: _____

Start: _____ Time: _____

Finish: _____ Time: _____

***** (Adhere for 12 hours) *****

QA Closed: _____		Date: _____		Work Order update only ☐		
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS		
		Rework ☐	Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐
		Scrap ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐
		Use-as-is ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐
		Suspected Unapproved ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Date : _____		Step #: _____		QTY Effective : _____		
Description Work Order Deviation		Disposition		MRB (QSI042) Approval		
				Completed By _____		
				Lead hand / Supervisor Approval Verification _____		
				QC / QA Coordinator Approval _____		
Root Cause		FAULT CATEGORY				
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong	
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions	
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance	
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect	
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing	
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved	
Internal Transport ☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing	
Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish	
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread	
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence	
Past Expiry Date ☐	☐ Manufacturing Process	OTHER : _____				
Misidentified ☐	☐ Past Due					

Work Order ID 165666***165666***

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Item ID: D119-646-041**Accept*****N900040100*****Setup Start *NS1*****Revision ID:****Stop *NS2*****Item Name:** AW119 Replacement Skidtube with Wearpads - Fits LH or RH**Start Date:** 9/27/2017 **Start Qty:** 1.00 ***1*****Cust Item ID:****Required Date:** 10/18/2017 **Req'd Qty:** 1.00 ***1*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start *NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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135

QC5- Inspect part completeness to step on W/O 0.00

135

QC

Memo

0.00

Quality Control

QA Closed: _____		Date: _____		Work Order update only ☐		
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS		
		Rework ☐	Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐
		Scrap ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐
		Use-as-is ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐
		Suspected Unapproved ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Date : _____		Step #: _____		QTY Effective : _____		
Description Work Order Deviation		Disposition		MRB (QSI042) Approval		
				Completed By		
				Lead hand / Supervisor Approval Verification		
				QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY				
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	
Past Expiry Date ☐	Manufacturing Process ☐					
Misidentified ☐	Past Due ☐	OTHER : _____				

Work Order ID 165666

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165666

Page 5

Item ID: D119-646-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 10/18/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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140

0.00

140

0.00

Skidtubes

Skidtubes

Memo1- Bend FWD end of tube using bender 1 and FOLIO 31 bend prog.
D3887.***Must use bending aid DT9544, ensure proper positioning***

2- Cut FWD end of tube as per dwg D3887.***Verify measurement***

3- Buff out marks left from bending

4- Drill FWD cap holes using DT8215. Open FWD & AFT cap holes to 0.208"

5- Open FWD saddle holes to finished size as per dwg D3887

6- Drill FWD x-bolt spacer holes using DT9816 and open to finished
size.(verify measurement)7- Drill Tow ring hole, using DT10047 locate from FWD saddle hole. (verify
measurement). Open to finished size.8- Drill 1.87" and 3.74 holes using DT10045 A&B locate from FWD saddle
hole. (verify measurement) as per dwg.

9- C'sink FWD cap hole as per detail "M"

10- Drill holes for wearpads using DT8931, open to 0.297".

11- Countersink crossbolt spacer holes, and prepare tube for welding, deburr.

12- Deburr and blow out chips from inside of tube.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 165666

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Item ID: D119-646-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 10/18/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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150

QC5- Inspect part completeness to step on W/O 0.00

150

QC

Memo

0.00

Quality Control

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐				

Work Order ID 165666

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Item ID: D119-646-041 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH
Start Date: 9/27/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 10/18/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160

0.00

160

0.96

Skidtubes

Memo

NOTE:TACK IN 2 MOST FWD X-BOLT SPACERS AND TEST FIT FWD
GROUND HANDELING FIXTURE,IF FIXTURE FITS WELL THEN
PROCEED. FIXTURE DT10091.

1-Insert crossbolt spacers. Weld as per QSI 004 and Dwg D3887. Remember to
back drill each hole before welding the other side. Use aluminum rod
A/RAluminum Rod_____

2-Grind cross bolt welds flush as per Dwg D3887. Ensure no pin hole.

3-Counterbore 5/16" x 0.750" deep as per Dwg D3887.

4- Deburr & Scribe batch # on Aft end of tube.

5- Pick D2855-5 cap and transfer drill missing hole. Deburr and identify cap
with skidtube batch#.

170

QC5- Inspect part completeness to step on W/O

0.00

170

0.00

QC

Memo

TEST FIT USING FIXTURE DT10091.

Quality Control

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 165666

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Item ID: D119-646-041

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 10/18/2017 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180

QC10- Inspect visual per QSI004- ground welds

0.00

180

QC

Memo

0.00

Quality Control

190

Pressure Wash per QSI005 4.3

0.00

190

HandFinish

Memo

0.44

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

200

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

200

Powdercoat

Memo

0.00

Powder Coating

MASK AREA SHOWN ON SHEET 7, NOTE 9

START TIME: _____

OVEN TEMPERATURE: _____

FINISH TIME: _____

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

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Quality Control

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION		AGAINST DEPARTMENT/PROCESS							
	Rework	☐	Skid-tube	☐	Cross tube	☐	Water Jet	☐	Engineering	☐
	Scrap	☐	Machining	☐	Small Fab	☐	Prod. Eng. Coord.	☐	Quality	☐
	Use-as-is	☐	Thermoforming	☐	Finishing	☐	Rec/Store/Packaging	☐	Other	☐
	Suspected Unapproved	☐	Large Fab	☐	Composite	☐	Supplier	☐		

Date :	Step #:	QTY Effective :	MRB (QSI042) Approval
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Description Work Order Deviation	Disposition	Completed By
		Lead hand / Supervisor Approval Verification
		QC / QA Coordinator Approval

Root Cause			FAULT CATEGORY		
Environment	☐	No Re-verification	Pressure/Forced	☐	Temperature/Cure
Design	☐	Operator	Bending	☐	Set-up
Doc/Data	☐	Offset/Setup	Centre Not Concentric	☐	BOM/Route
Equip/Tooling	☐	Supplier	Cracks	☐	Broken/Damage/Defect
Handling/Pre	☐	Training	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified
Material	☐	Use for Testing	Cuffs	☐	Contamination
Internal Transport	☐	Poor Information	Crushing	☐	Countersink
Tribal Knowledge	☐	Rushing	Heat Treat	☐	Cut Too Short
LOA	☐	Product Improvement	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear
Substation	☐	Process Improvement	Marks/Chatter	☐	Drill Holes
Past Expiry Date	☐	Manufacturing Process			
Misidentified	☐	Past Due	OTHER :		

Work Order ID 165666

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Item ID: D119-646-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 10/18/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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240

0.00

240

0.00

HandFinish

Memo

Hand Finishing

1-Install wearpads, gaskets as per Dwg D3887. Put sikaflex in insert before installing bolts and washers

A/R Sikaflex-240/-291 _____

Sikaflex expire date: _____

2-assemble o'ring to plug as per dwg D3492 and apply o'ring lube

A/R 55-o'ring lube batch: _____

3 -Inspect for foreign objects as per QSI 024

4 -Install D2855-3 Cap and seal with Sikaflex. Clean excess adhesive.

A/R Sikaflex-240/-291 _____

Sikaflex expire date: _____

5 -Install insert in D2855- Cap.

Install cap and seal with Sikaflex. Clean excess adhesive.

A/R Sikaflex-240/-291 _____

Sikaflex expire date: _____

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS					
Part No. _____		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐		
NCR No. _____		Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐		
		Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐		
		Large Fab ☐	Composite ☐	Supplier ☐			

Date : _____	Step #: _____	QTY Effective : _____	MRB (QSI042) Approval
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Description Work Order Deviation	Disposition	Completed By
		Lead hand / Supervisor Approval Verification
		QC / QA Coordinator Approval

Root Cause			FAULT CATEGORY					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐			
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐			
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐			
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐			
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐			
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐			
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐			
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐			
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐			
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐			
Past Expiry Date ☐	Manufacturing Process ☐							
Misidentified ☐	Past Due ☐	OTHER : _____						

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Quality Control

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation		Disposition			
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : ☐			

Picklist Print

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Page 1

Work Order ID: 165666

165666

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017

Required Date: 10/18/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP RevA: New issue DD verified by:EC IPP rev B
10.02.22 per PAR 09-043 EC verified by:DD IPP REVC 12.11.05
(DEOD3887-B-1)(ecn 12-675) DD verf:JLM IPP REV:D 13.03.20 per
chg003 ECN13-534 DD verf:JLM IPP REV:E 17.05.19 as per dwg
D3887 rev.e DD verf:JFS

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2855-5		Manufactured	No			160	Each	8.0000	1	1			
D2855-5									**				
Cap													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				LG002				8					
					162208			8					
ALS4-1032-225	AELS8-1032-225	Purchased	No			240	Each	1,755.000	1	1			
ALS4-1032-225									**				
Rivnut													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				FG				55					
					M134975			20					
					M135998			5					
					M136579			30					
				FP001				1408					
					M135603			40					
					M135920			38					
					M135998			1319					
					M136265			11					
				ST556				292					
					M136579			292					

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

Picklist Print

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Page 2

Work Order ID: 165666

165666

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017

Required Date: 10/18/2017

Start Qty: 1.00

Required Qty: 1.00

AN3C4A

Purchased

No

240

Each

1,716.000

6

6

AN3C4A

Bolt

Location

Loc Qty

Loc Code

FG

20

122814

20

FP001

605

M136450

23

M136740

8

M136986

20

M137075

43

M137164

2

M137361

2

M137587

250

M137820

23

M137963

234

OVER002

725

M137507

150

M138040

125

M138209

150

M138336

300

ST350

366

M135704

2

M138238

364

D2500-1-190

Manufactured

No

110

Each

90.0000

1

1

D2500-1-190

Ext'n - I' Beam Tube 4"

Location

Loc Qty

Loc Code

HALL

18

151612

18

LG002

72

159717

72

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Page 2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

Picklist Print

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Work Order ID: 165666

165666

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017

Required Date: 10/18/2017

Start Qty: 1.00

Required Qty: 1.00

D2579 Manufactured No 140 Each 98.0000 2 2

D2579

Crossbolt Spacer

Location

Loc Qty

Loc Code

LG001

98

141711

4

162087

94

D2855-3 Manufactured No 240 Each 5.0000 1 1

D2855-3

Cap

Location

Loc Qty

Loc Code

FP001

5

151614

4

153291

1

NAS1611-005 Purchased No 240 Each 478.0000 24 24

NAS1611-005

O-RING

Location

Loc Qty

Loc Code

FP001

478

m136184

7

m136192

1

m136377

22

m137017

50

m137164

6

m137710

42

m137769

150

m137963

200

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					

Picklist Print

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Work Order ID: 165666

165666

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017

Required Date: 10/18/2017

Start Qty: 1.00

Required Qty: 1.00

D3492-5

Manufactured No

240

Each

236.0000

24

24

D3492-5******

Plug

LocationLoc QtyLoc Code

FP001

236

133396

1

155493

5

161682

35

162345

135

162820

60

D3672-1

Manufactured No

240

Each

1,836.000

2

2

D3672-1******

Washer, Phenolic

LocationLoc QtyLoc Code

FG

10

85222

10

FP001

1326

150074

326

164008

500

164412

500

ST047

500

163255

500

D3681-1

Manufactured No

160

Each

154.0000

12

12

D3681-1******

Spacer

LocationLoc QtyLoc Code

LG001

154

160402

91

163491

63

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					

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Work Order ID: 165666

165666

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017

Required Date: 10/18/2017

Start Qty: 1.00

Required Qty: 1.00

D3847-1 Manufactured No 240 Each 107.0000 5 5

D3847-1

Wearpad

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP001	107	
153503	15	
161945	10	
161946	10	
161947	6	
163055	12	
163453	30	
163718	24	

D3847-11 Manufactured No 240 Each 28.0000 1 1

D3847-11

Wearpad

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP001	28	
155829	6	
159114	6	
162014	4	
163193	12	

D3885-1 Manufactured No 140 Each 11.0000 1 1

D3885-1

Standard Web

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG002	11	
156109	1	
161481	10	

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					

Picklist Print

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Work Order ID: 165666

165666

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017

Required Date: 10/18/2017

Start Qty: 1.00

Required Qty: 1.00

D3903-1

Manufactured No

160

Each

149.0000

12

12

D3903-1******

Spacer

LocationLoc QtyLoc Code

LG001

149

162344

76

162888

33

163905

40

ALS4-1032-130

AELS4-1032-130

Purchased

No

220

Each

4,798.000

30

30

AI S4-1032-130******

Rivnut

LocationLoc QtyLoc Code

FG

100

FG

M135442

50

M136579

50

FP001

4660

M133077

3

M136579

381

M137820

4276

st555

38

M136579

38

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

Picklist Print

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Work Order ID: 165666

165666

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017

Required Date: 10/18/2017

Start Qty: 1.00

Required Qty: 1.00

AN3C5A

Purchased

No

240

Each

819.0000

26

26

AN3C5A

Bolt

Location

Loc Qty

Loc Code

FG

5

122800

5

FP001

557

M137361

61

M137963

496

OVER002

200

M137710

200

ST350

57

M135442

57

NAS1149C0332R

Purchased

No

240

Each

4,362.000

32

32

NAS1149C0332R

WASHER

Location

Loc Qty

Loc Code

FP001

2660

m137851

1892

m138237

768

GA

448

m136444

448

ST260a

1000

m138207

1000

ST266

254

m137381

254

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

Picklist Print

Monday, August 28, 2017 12:42:37 PM

Work Order ID: 165666

165666

Parent Item: D119-646-041

D119-646-041

Parent Item Name: AW119 Replacement Skidtube with Wearpads - Fits LH or RH

Start Date: 9/27/2017

Required Date: 10/18/2017

Start Qty: 1.00

Required Qty: 1.00

MS24694-C52

Purchased

No

240

Each

128.0000

2

2

MS24694-C52

SCREW

Location

Loc Qty

Loc Code

FP001

28

m135978

28

ST285

100

m137951

100

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



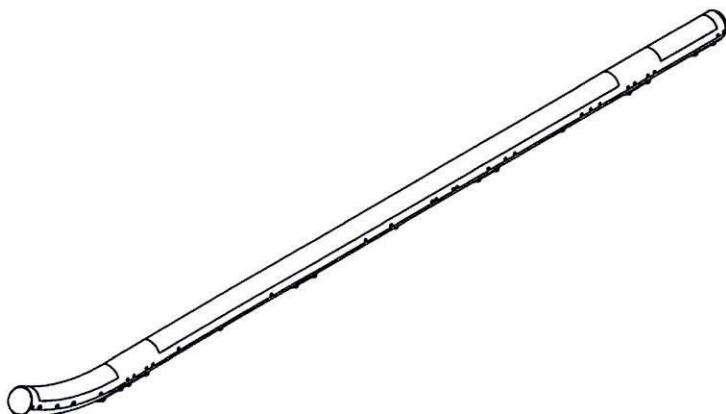
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : ☐			

8 7 6 5 4 3 2 1



D3887-041 STANDARD SKIDTUBE ASSY WITH WEARPAD(SHOWN)
D3887-043 STANDARD SKIDTUBE ASSY WITH WEARPLATE (SIMILAR)
D3887-045 STANDARD SKIDTUBE ASSY WITH TRAINING WEARPLATE (SIMILAR)

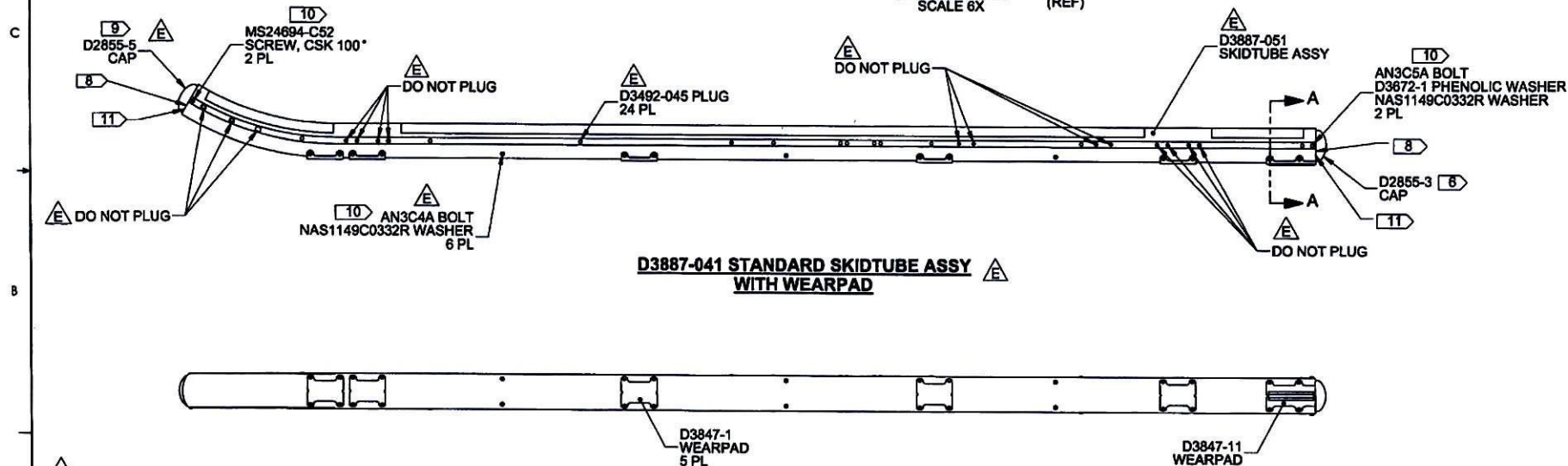
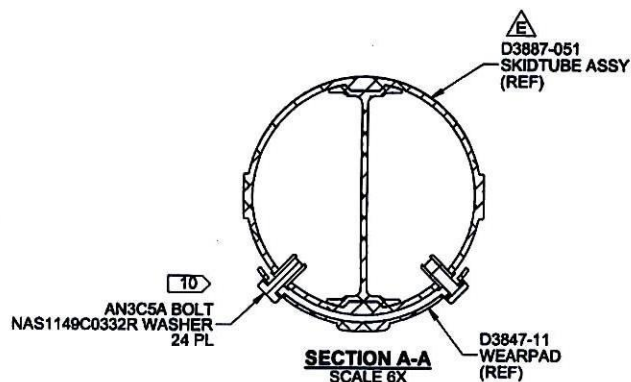
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 WITHOUT NOTICE
 WORK ORDER
 NO. 165666 HJS
 1708-50

E	COMPLETE REDRAW, ADDED ASSY DETAILS -3, -051 & -053, SEE PREVIOUS REV. FOR DETAIL. POWDER COAT REMOVED FROM SADDLE AREA SEE DETAIL F, REF PAR15-421. ADDED STRUCTURAL PROVISIONS TO ALLOW FOR THE INSTALLATION OF THE D119-648-313/314 SKIDTUBE PROTECTOR KIT, REF PAR17-577. CHANGE QTY OF D2855-3, ADDED D2855-5 CAP ASSEMBLIES, ADDED INSTRUCTIONS TO LOCATE INSERT HOLE FOR D2855-5 CAP, REF PAR17-583	AJS / WK	17.02.03
D	REVISED BEND TOLERANCES FOR MANUFACTURABILITY, 135.07 WAS 134.04 (ZN D5-6), ADD 5.07 (ZN C2-6), ADD 116.8 (ZN D5-6), DELETE GASKETS (BOM, SH 2)	DB	13.09.20
C	(SHT1, P/L, ZN C2-2, C3-2, C4-2) ITEM 13, QTY 2 WAS 4, ITEM 42, QTY 32 WAS 34, ITEM 44, QTY 30 WAS 32, ADD ITEM 46, MS24694-C52 WAS AN3CSA, 2 PLCS, (ZN C1-5, C1-6, B4-7) Ø0.201 CSK Ø0.385 X 100" WAS Ø0.214 THRU, ADDED DETAIL F (ZN C8-5, C8-6, B8-7), ADD ITEM 10, D2579 CROSS BOLT SPACER (ZN D4-1, A8-7)	DB	13.02.19
B	ALS4-1032-130 WAS AELS-1032-130 (ZN C4-1, C5-7, C3-7); ADD DTR831 (ZN A8-1); ADD 134.04 (ZN C4-8); D2855-3 WAS D2575 (ZN D4-1, C7-2, C2-2, C7-3, C2-3, C7-4, C2-4); AN3CSA WAS AN3C4A (ZN C8-2, C2-2, C6-3, C2-3, C6-4, C2-4); Ø0.313 WAS Ø0.328 (ZN C4-5, C4-6, C2-7 & B3-7) REVISED NOTE N (ZN B3-7)	RF	09.06.30
A	NEW ISSUE	RF	09.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	WK	EUGENE, OR	
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	DD	D3887	SHEET 1 OF 11
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	A119 STD SKIDTUBE ASSY	NTS
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RELEASED
 2017-05-08
 CW 17-519

8 7 6 5 4 3 2 1

ITEM	QTY	P/N	DESCRIPTION
	X	D3887-041	STANDARD SKIDTUBE ASSY WITH WEARPAD
1	1	D2855-3	CAP ASSY
2	1	D2855-5	CAP ASSY
3	24	D3492-045	PLUG ASSY
4	2	D3672-1	PHENOLIC WASHER
5	5	D3847-1	WEARPAD
6	1	D3847-11	WEARPAD
7	1	D3887-051	SKIDTUBE ASSY
8	1	ALS4-1032-225	INSERT
9	26	AN3C5A	BOLT
10	6	AN3C4A	BOLT
11	2	MS24694-C52	SCREW, CSK 100°
12	32	NAS1149C0332R	WASHER



NOTES:

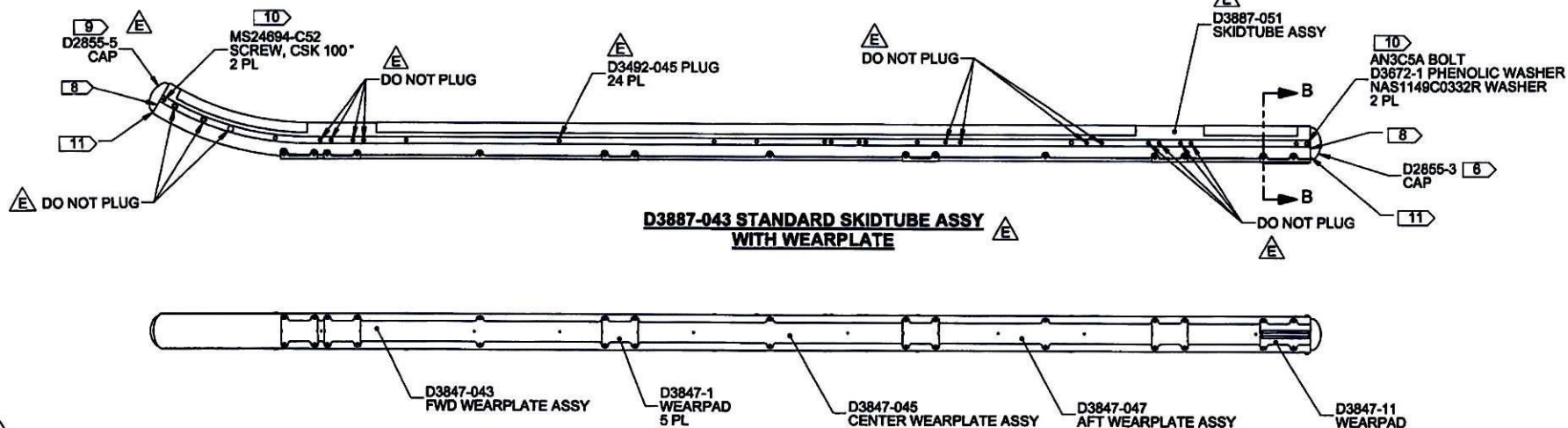
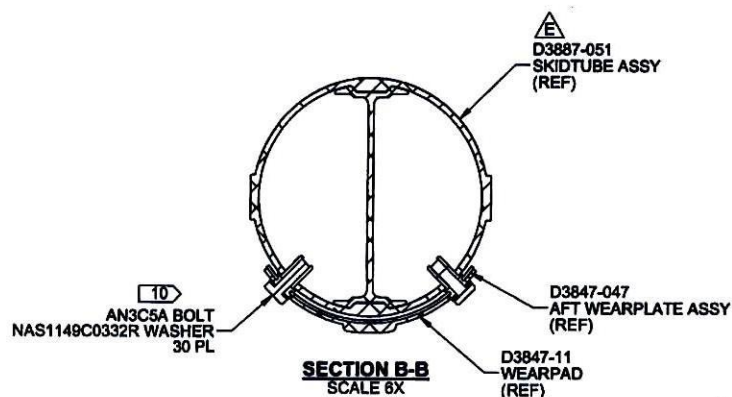
- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3887-041" AND BATCH NUMBER PER QSI 044 6.4 ON THE ID OF THE TUBE, BEFORE INSTALLING THE AFT D2855-3 CAP
- 7) WEIGHT: 32.0 lbs
- 8) RELIEVE INNER RIDGE OF EXTRUSION, AS NEEDED, TO ALLOW FOR INSTALLATION OF D2855-3 AND D2855-5 CAP ASSY, ALODINE BARE MATERIAL
- 9) USE D3887-051 SKIDTUBE ASSY TO LOCATE AND BACKDRILL UNDRILLED INSERT HOLE INTO D2855-5 CAP. OPEN HOLE TO Ø0.297, ALODINE BARE MATERIAL AND INSTALL ALS4-1032-225 (OR AKS7-1032-225, OR ALS7-1032-225, OR AKS4-1032-225) INSERT ON INSIDE OF CAP.
- 10) SEAL FASTENERS WITH SIKAFLEX -241/291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT
- 11) SEAL MATING SURFACES WITH SIKAFLEX -241/291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT

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2017-05-08

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ITEM	QTY -043	P/N	DESCRIPTION
	X	D3887-043	STANDARD SKIDTUBE ASSY WITH WEARPLATE
1	1	D2855-3	CAP ASSY
2	1	D2855-5	CAP ASSY
3	24	D3492-045	PLUG ASSY
4	2	D3672-1	PHENOLIC WASHER
5	1	D3847-043	FWD WEARPLATE ASSY
6	1	D3847-045	CENTER WEARPLATE ASSY
7	1	D3847-047	AFT WEARPLATE ASSY
8	5	D3847-1	WEARPAD
9	1	D3847-11	WEARPAD
10	1	D3887-051	SKIDTUBE ASSY
11	1	ALS4-1032-225	INSERT
12	32	AN3C5A	BOLT
13	2	MS24694-C52	SCREW, CSK 100"
14	32	NAS1149C0332R	WASHER



NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3887-043" AND BATCH NUMBER PER QSI 044 6.4 ON THE ID OF THE TUBE, BEFORE INSTALLING THE AFT D2855-3 CAP
- 7) WEIGHT: 37.0 lbs
- 8) RELIEVE INNER RIDGE OF EXTRUSION, AS NEEDED, TO ALLOW FOR INSTALLATION OF D2855-3 AND D2855-5 CAP ASSY, ALODINE BARE MATERIAL
- 9) USE D3887-051 SKIDTUBE ASSY TO LOCATE AND BACKDRILL UNDRILLED INSERT HOLE INTO D2855-5 CAP. OPEN HOLE TO Ø0.297, ALODINE BARE MATERIAL AND INSTALL ALS4-1032-225 (OR AKS7-1032-225, OR ALS7-1032-225, OR AKS4-1032-225) INSERT ON INSIDE OF CAP.
- 10) SEAL FASTENERS WITH SIKAFLEX -241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT
- 11) SEAL MATING SURFACES WITH SIKAFLEX -241/291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT

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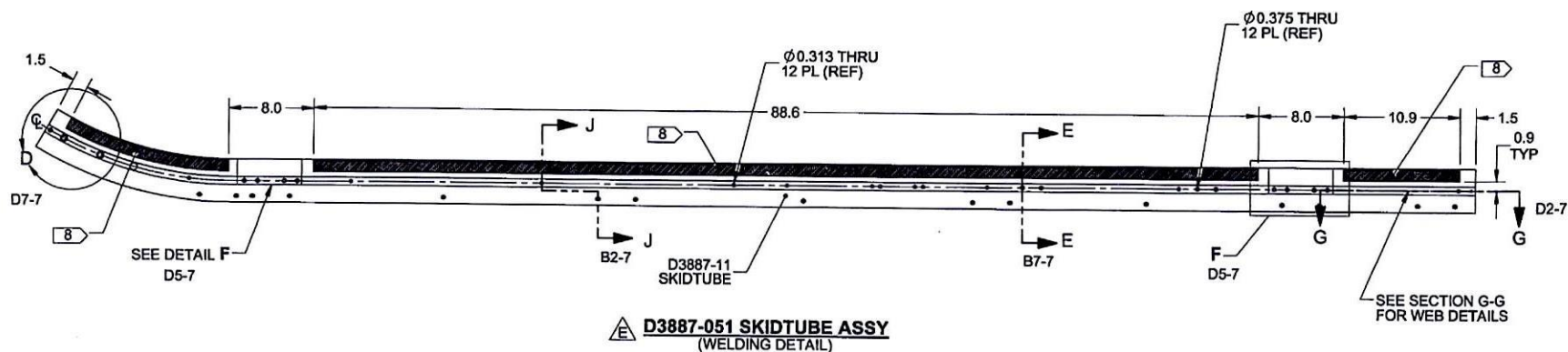
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ITEM	QTY -051	P/N	DESCRIPTION
	X	D3887-051	SKIDTUBE ASSY
1	2	D2579	CROSS BOLT SPACER
2	12	D3681-1	CROSS BOLT SPACER
3	1	D3885-1	STANDARD WEB
4	1	D3887-11	SKIDTUBE
5	12	D3903-1	CROSS BOLT SPACER
6	30	ALS4-1032-130	INSERT



NOTES:

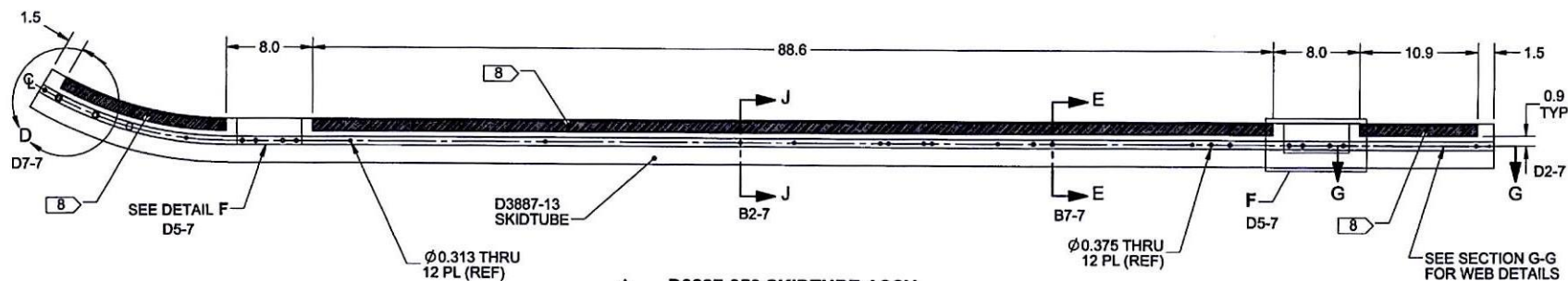
- 1) MATERIAL: N/A
- 2) FINISH: POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY AT NEXT ASSEMBLY
- 7) WEIGHT: N/A
- 8) AFTER APPLICATION OF FINISH, PAINT TOP SURFACE OF SKIDTUBE WITH MIL-W-5044 ANTI-SKID PAINT (WING WALK) AS INDICATED TO 0.50 ABOVE LOCATION RIDGE, PER QSI 005 SECTION 4.4

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ITEM	QTY	P/N	DESCRIPTION
	X	D3887-053	SKIDTUBE ASSY
1	2	D2579	CROSS BOLT SPACER
2	12	D3681-1	CROSS BOLT SPACER
3	1	D3885-1	STANDARD WEB
4	1	D3887-13	SKIDTUBE
5	12	D3903-1	CROSS BOLT SPACER



D3887-053 SKIDTUBE ASSY
(WELDING DETAIL)

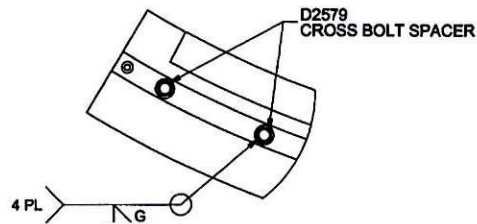
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY AT NEXT ASSEMBLY
- 7) WEIGHT: N/A
- 8) AFTER APPLICATION OF FINISH, PAINT TOP SURFACE OF SKIDTUBE WITH MIL-W-5044 ANTI-SKID PAINT (WING WALK) AS INDICATED TO 0.50 ABOVE LOCATION RIDGE, PER QSI 005 SECTION 4.4

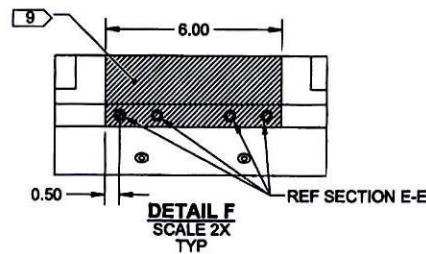
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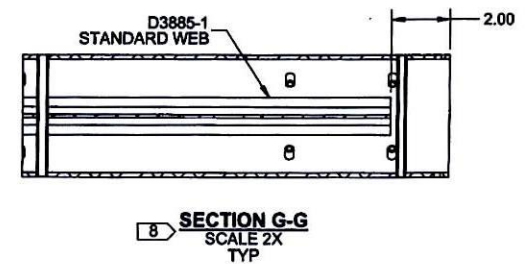
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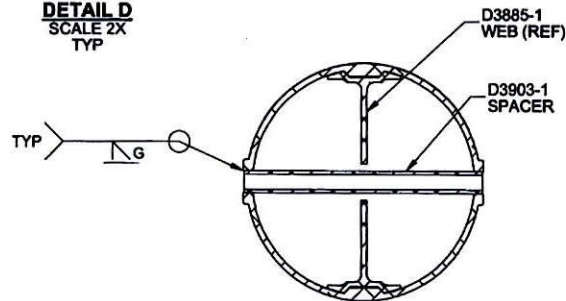
DETAIL D
SCALE 2X
TYP



DETAIL F
SCALE 2X
TYP

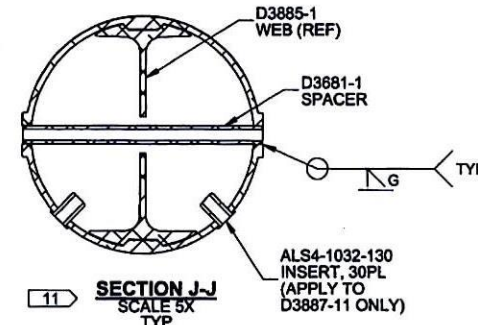


SECTION G-G
SCALE 2X
TYP



SECTION E-E
SCALE 5X
TYP

(FOR 12X ϕ 0.375 HOLES
PER SKIDTUBE)



SECTION J-J
SCALE 5X
TYP

(FOR 12X ϕ 0.313 HOLES
PER SKIDTUBE)

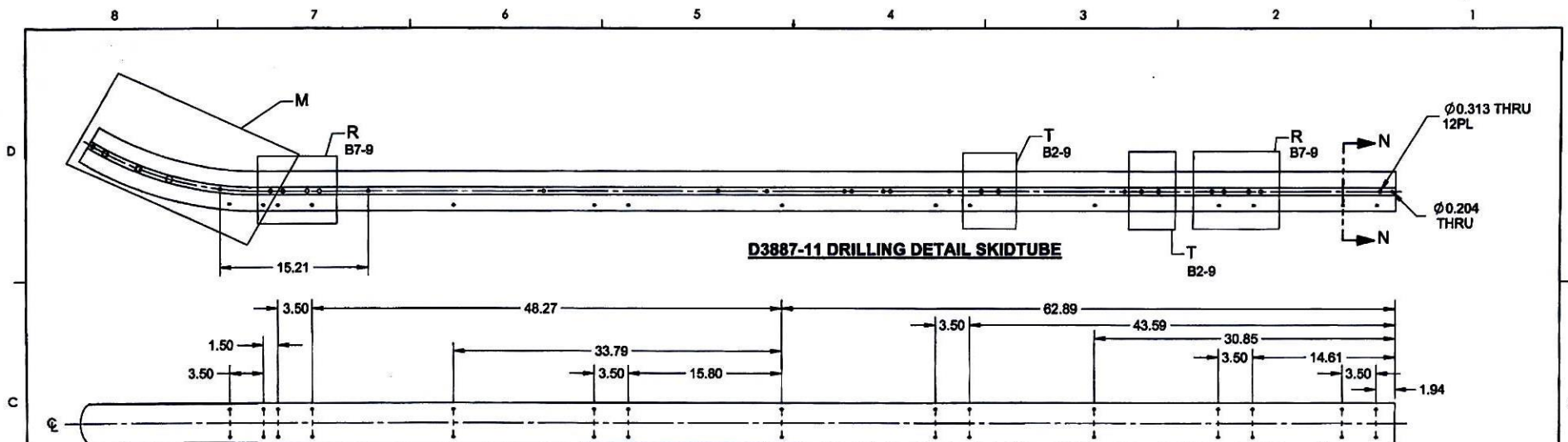
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY AT FINAL ASSEMBLY
- 7) WEIGHT: N/A
- 8) INSERT D3885-1 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015 AFTER BENDING. ENSURE HOLES LINE-UP
- 9) MASK THIS AREA AND DO NOT POWDER COAT
- 10) AFTER DRILLING AND BENDING ASSEMBLY, PERFORM THE FOLLOWING FOR THE SECTION E-E ϕ 0.375 HOLES ONLY:
 - i) CHAMFER HOLES ϕ 0.475 x 45°
 - ii) INSERT D3903-1 SPACER
 - iii) WELD INTO PLACE AND GRIND FLUSH
 - iv) C'BORE TO ϕ 0.313 x 0.75 DEEP
 - v) DEBURR HOLES
- 11) AFTER DRILLING AND BENDING ASSEMBLY, PERFORM THE FOLLOWING FOR THE SECTION J-J ϕ 0.313 HOLES ONLY:
 - i) CHAMFER HOLES ϕ 0.354 x 45° OR 0.050 DEEP x 45° (BOTH SIDES)
 - ii) INSERT D3681-1 SPACER
 - iii) WELD INTO PLACE AND GRIND FLUSH
 - iv) DEBURR HOLES
- 12) WELD PER DART QSI 004

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2017-05-08

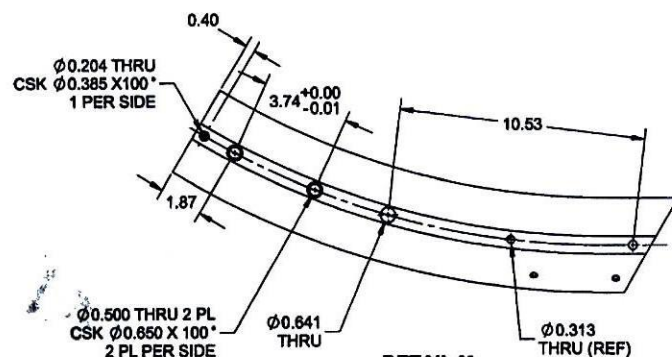
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MFG. APPR.	DD	D3887	SHEET 7 OF 11
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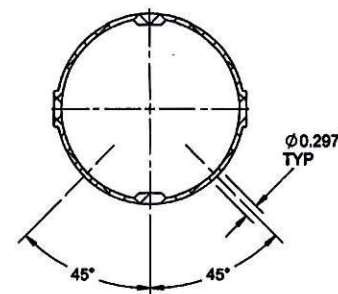


D3887-11 DRILLING DETAIL SKIDTUBE

WEARPAD/WEARPLATE HOLE PATTERN
FOR REFERENCE ONLY
DRILL USING DT8931 TEMPLATE



DETAIL M
SCALE 2X



SECTION N-N
SCALE 4X
15 PL

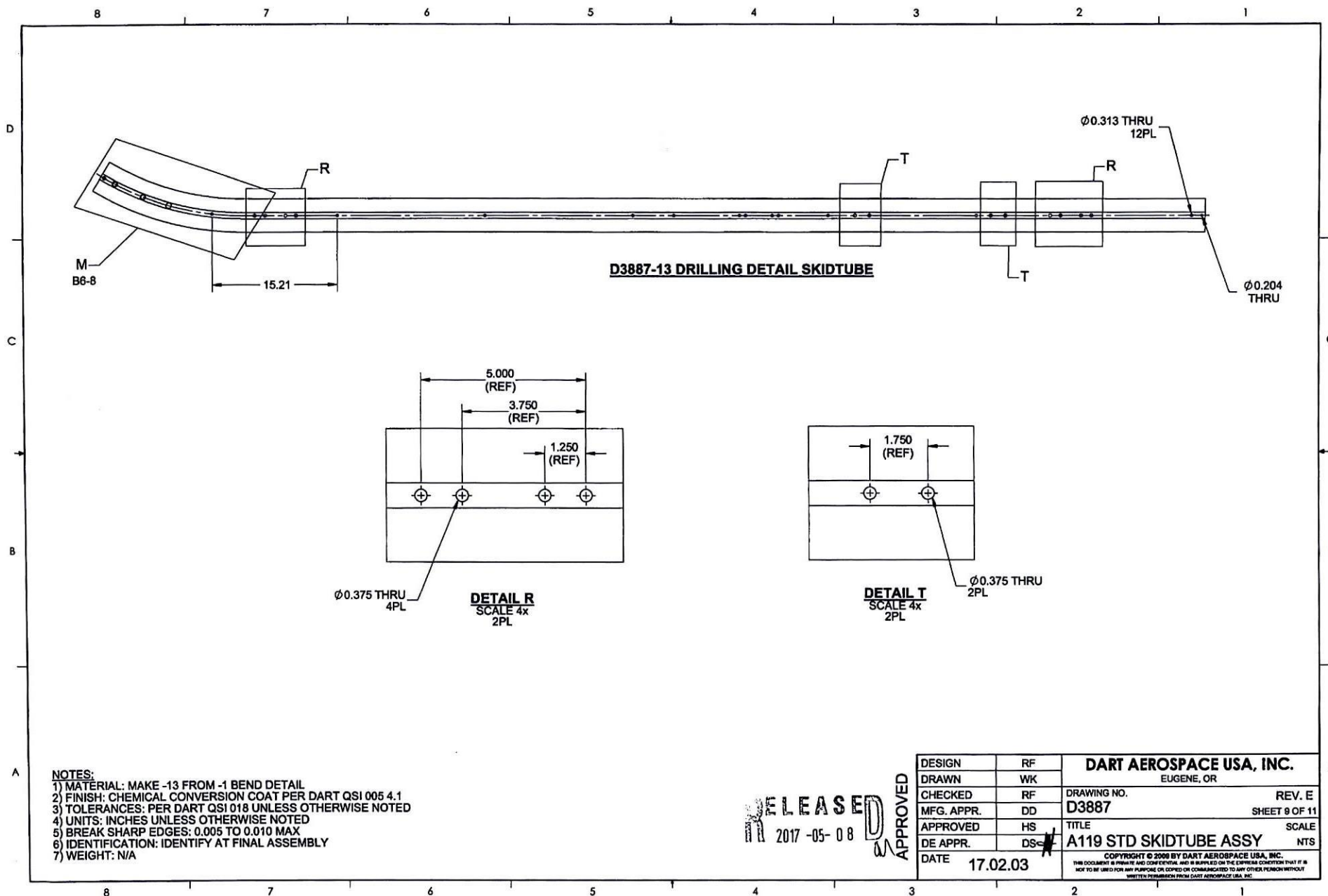
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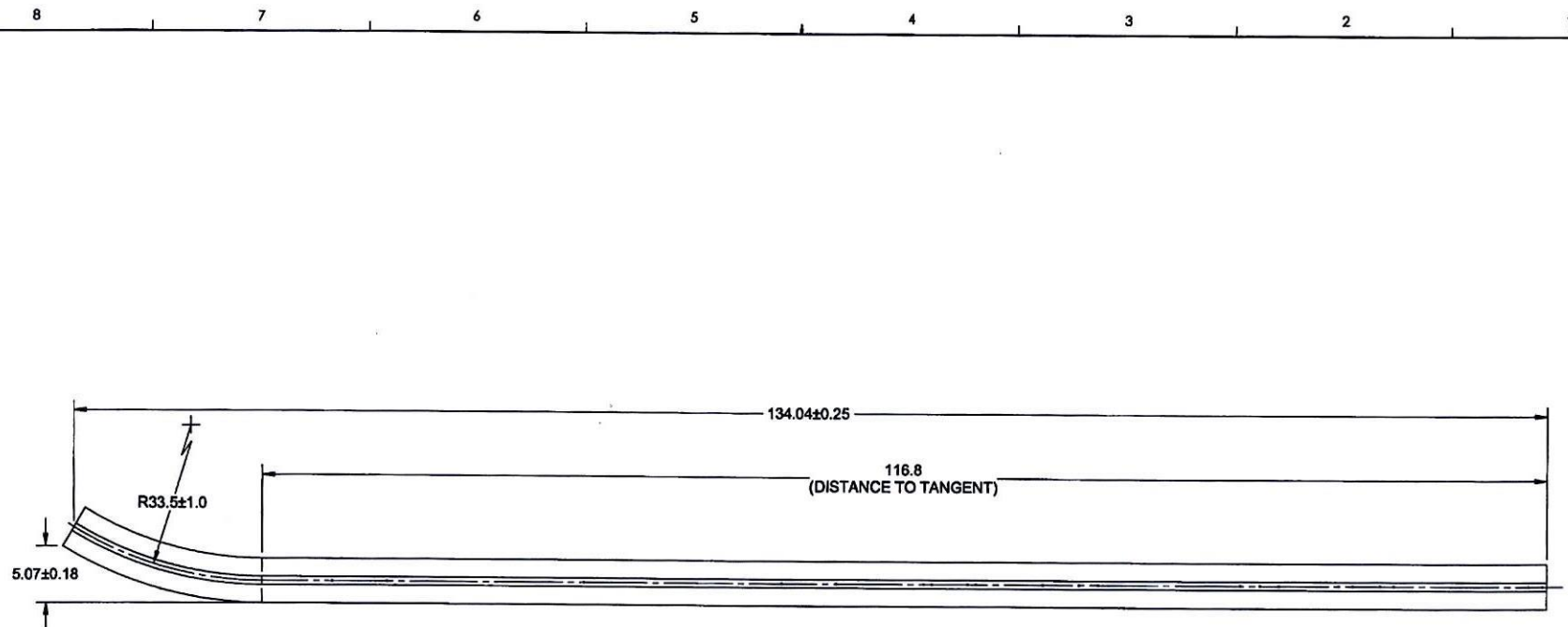
- 1) MATERIAL: MAKE -11 FROM -1 BEND DETAIL
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY AT FINAL ASSEMBLY
- 7) WEIGHT: N/A
- 8) USE DART DRILL TEMPLATE DT8931 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARPAD/WEARPLATE INSERTS.

RELEASED
2017-05-08

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D3887-1 BEND DETAIL SKIDTUBE

NOTES:

- 1) MATERIAL: MAKE -1 BEND DETAIL FROM -3 PILOT HOLE DETAIL
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY AT FINAL ASSEMBLY
- 7) WEIGHT: N/A
- 8) DAMAGE TOLERANCE ON FWD BEND:
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 8.5 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP 0.020" DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.

RELEASE
2017-05-08

APPROVED

DESIGN	RF	DART AEROSPACE USA, INC.	
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CHECKED	RF	DRAWING NO.	REV. E
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